NEDO Research Related to Large-scale PV-related Grid-connection Projects

Hirofumi Nakama

NEDO is Japan's largest public R&D management organization for promoting the development of advanced industrial, environmental, new energy and energy conservation technologies. One of the important objectives of NEDO's R&D is solving problems that arise when distributed and renewable resources are connected to power grids. An overview of grid-connection-related demonstrative projects of the New Energy and Industrial Technology Development Organization (NEDO) is introduced in this presentation.

The presentation will focus on recent topics related to two large-scale PV demonstration projects: "Demonstrative Project on Grid-Interconnection of Clustered Photovoltaic Power Generation Systems" and "Verification of Grid Stabilization with large-scale PV Power Generation Systems." In the first project, grid connection technologies for a mega solar system are being studied. The focus of the second project is voltage control technology and a new islanding detection system for clustered PV systems.

Also, results of a pre-feasibility study of future network technologies, in anticipation of the widespread installation of renewable energy systems, will be discussed in the latter part of the presentation. Through this study, we identified the potential for the rapid penetration of PV systems and future problems, such as the challenge of controlling voltages, the instability of the main grid and the imbalance of demand and supply, which our grid systems will need to address in the future.